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### 論文内容の要旨

Unlike most of the food crops grown to satisfy household consumption and food security requirements in Uganda, rice is consumed more in urban areas, where it is one of the major foodstuffs. As a result, most of rice produced by rural farmers enters the marketing system. Unfortunately, there is a problem of market access due to poor linkages between the rural producers and the urban consumers. To address this problem, the researcher has used a value chain approach to study the rice marketing system by delving into trade policies and quality aspects while identifying the constraints encountered along the distribution system and upgrading opportunities. Upgrading refers to acquisition of technological, institutional and market capabilities that allow resource-poor rural communities to improve their competitiveness and move into higher-value activities. The study was based in Eastern Uganda which is the main rice producing area of the country. The research analyzed the marketing system by looking at its governance, network structure and value adding opportunities. Although value chain approach has been used by various studies in Uganda, it has concentrated on mapping of distribution channel and gross margin analysis. The aspect of incorporating upgrading strategies and quality assessment has not been of focus. This study therefore contributes to literature by including the elements of policy, quality and upgrading which are necessary for increasing the competitiveness of the rice industry. There is no lead firm in Uganda rice industry due to market liberalization

with minimum barriers to entry and exit. The industry is highly competitive with many uncoordinated smallholder farmers and many less cooperative rice traders. Value chain governance is in the form of trade policies and rice standards formulated by the government. Assessment of the role of such policies to the rice sector formed the first section of this research. Through mapping of the marketing channels, identification of constraints and upgrading options; the network structure was revealed in the second section of the study. To assess the competitiveness of the sector, the study ended by analyzing the quality of rice in the market and the possibilities of improving it.

To assess the policies influencing the rice sector, the study relied on a range of data sources. It first explored the rice marketing situation in the country by conducting on-desk review of relevant literature. It then used secondary data from local, regional and international databases. These data were helpful in constructing balance sheets, calculating relevant indicators such as self-sufficiency and import dependency ratios, analyzing changes in trade directions, analyzing market price trends and correlations. Such information was important in revealing whether the policy has been helpful. To study the network structure as well as market upgrading opportunities and challenges, a field survey was conducted. The data were captured from farmers, small scale millers and large scale processors. Collection method was through focus group discussions, individual semi-structured interviews, personal observations and key informant

interviews. The major topics of interviews included major clients and suppliers, prices and pricing mechanism, support organizations, marketing challenges and upgrading opportunities. The result of that survey was helpful in identifying who holds influence in the marketing chain, trust and relationship between actors among others. A similar survey was conducted to assess the competitiveness of Ugandan rice to improve its quality. The main respondents were the Uganda National Bureau of Standards (UNBS), rice distributors specifically retailers and farmers. The topics for retailers included rice brands, sales, quality management, suppliers and main clients. Such information was useful in estimating retailers' profitability, quality improvement procedures and consumer preferences. In addition, personal observation of retailer rice samples was conducted for important attributes of physical quality such as stones and broken rice through manual sorting, weighing and calculating their respective percentages. The major topics for farmers concentrated around postharvest handling mainly drying, quality management procedures and challenges. The findings of all studies are as follow :

Developing the rice markets in Uganda requires multifaceted approach including policies, governance, quality, infrastructure and improvement of all the processes along the entire marketing channel. In terms of policy, the government of Uganda joined its East African counterparts to enact a common external tariff on rice imports as a way of promoting the local industry. However, the policy is not successful due to two major reasons : (i) less commitment by member partners in terms of implementation due to other conflicting interests and (ii) inflow of rice from one member country (Tanzania) which has a competitive advantage as a replacement for internationally traded rice. Kenya's interest in trading its tea with Pakistan enabled it to levy less than required tariff on Pakistani rice which is then repackaged by unscrupulous traders and exported to Uganda. Similarly, Tanzania prioritizes food security and as such removes tariffs from rice imports during periods of shortage. Such actions enable Tanzanian traders to import excess rice which is then smuggled to Uganda. Since the enactment of

import tariff, the volume of rice imported from Tanzania to Uganda has drastically increased to cover the reduced imports from Pakistan and Viet Nam. This has helped Uganda's rice import dependency ratio to remain unchanged. The implication is that the initial purpose of the import tariff which was reducing foreign imports to motivate local farmers has not benefited Ugandan but Tanzanian farmers. For Ugandan farmers to benefit, it will require the cost and quality of their rice to at least equal to that of Tanzanian rice in Ugandan markets. This can be possible by reorganizing and or improving the entire processes along the rice value chain.

Ugandan rice value chain is long with many actors who hold varying degrees of power and influence. There are many smallholder farmers who produce rice either individually or in groups. However, marketing is mostly done on individual basis which significantly reduces the bargaining power of farmers. Given that most rice millers provide milling services at a commission rather than engaging in buying of rice, market power remains with village assemblers who purchase rice from farmers and sale to wholesalers. Relative coordination among village assemblers, high transport costs to other markets and small volumes of rice supplied by individual farmers are some of the factors responsible for the assemblers' bargaining power. For farmers to raise their bargaining power there is need for horizontal coordination and aggregate their produce before selling. Currently, many farmers have joined groups aimed at joint production. Formation of these groups has been facilitated by several development organizations. However, marketing receives less attention and is supported by few agencies. More marketing support in terms of group formation, trust and management skills is required. The poor road conditions limit some traders from reaching the rural areas, leading to an oligopsony which empowers buyers at the expense of sellers. There is need for improving the condition of rural roads to lower transport costs and enable farmers to access better markets. In liberalized rice sector of Uganda, market access alone is not enough to improve the incomes of farmers. The high rice milling costs will need to lower for farmers to improve the profitability of rice farming.

Since electricity cost is relatively lower than diesel cost, farmers can reduce milling cost if they use electricity operated machines. Similarly, rice millers make a better profit with electricity operated compared to a diesel operated machine. Therefore, a program aimed at rural electrification is beneficial to all stakeholders and can play a major role in improving the competitiveness of rice produced by Ugandan farmers. Clustering of small scale millers as practiced in the study area is good since the cost of providing services to clusters is minimized. However, allocation of a common electricity meter should be discontinued since some defaulting members are leading to electricity disconnection which affects the milling operations of the rest of members. Lower cost contributes to competitiveness to a certain extent and the rest is covered by high quality.

The quality of Ugandan rice is still low due to poor postharvest handling and simple milling machines without cleaning and grading capabilities. The most critical stage of postharvest handling is drying where farmers tend to over dry paddy before storage or milling for fear of rotting which can cause more severe losses. It is also at the drying phase that foreign matter mixes with paddy leading to further quality deterioration as paddy is spread on the bare ground. If farmers were trustworthy, they would get advance financial credit from millers to invest in basic drying equipment like moisture meters and tarpaulin to improve the quality of their rice. However, farmers' failure to repay the credit has led to mistrust between them and their lenders and as a result hampered any credit advancement. This necessitates strengthening of the linkages between different chain actors through vertical coordination. Vertical coordination is essential in building the relationship and trust between several actors across the chain which can result into a win-win scenario for all the participants. As well as being more profitable to traders, local rice brand Super is more appealing to consumers compared to imported brands due to its aromatic attributes. In addition, Super rice has thick grains which are not easily

broken during milling thereby helping to keep its quality relatively high. Focusing on promoting Super rice as a replacement for imported rice and as a possibility of improving quality is a viable consideration. Also, improving quality will require training of all value chain actors the required skills. Therefore the government needs to strengthen the agricultural extension services.

The development of rice markets in Uganda will require increasing the competitiveness of Ugandan rice value chain rather than protecting it through policies. First, efforts towards strengthening the coordination among actors at the same chain node should be taken to receive the benefits of economies of scale and smoothen the internal functioning of the groups. Second, improving relationships between actors at different nodes should be facilitated to build trust and enable intra-chain financing to improve rice quality. Third, improvement in public services such as rural electrification to reduce milling costs and rural roads to allow sellers access many buyers is another viable option.

Although this thesis tries to employ a holistic approach of assessing the policies, quality and upgrading options of Uganda rice markets, many questions remain unanswered. In terms of policy, the study finds that the import tariff has not been helpful. This is mainly because implementation by member countries is weak. What is not clear however is what the impact would be if all member countries were committed to the policy implementation as stated in the protocol. A study addressing such scenario would be helpful. Also, the study indicates that consumers who buy rice for home consumption consider price while those who buy for hotel and restaurant business consider quality. However, it does not go into details of consumer preferences and willingness to pay for quality rice. Therefore a study in that area is worth considering. In Uganda, supermarkets are coming up at a high rate. Studies about their role on the quality of rice are still limited and are therefore recommended.

## 審査報告概要

本論文は、ウガンダをはじめとするアフリカにおいて、商品作物として近年着目されている米産業の生産・流通構造を、バリュー・チェーン分析の手法を援用して解明したものである。研究資料の乏しい状況の中で、米の生産農家、精米業者、流通ブローカー、小売業者、普及員、政策担当者など、米産業の関連アクターを広範かつ多数対象として調査を行なった。米産地では小規模な米農家が多数いるのに対し、ごく少数の流通業者という買い手独占の市場構造であること、そのため米の品質が正当に評価されず米農家の収益が抑制されていること、

収穫後の調整作業をどのアクターがどのような方法で行うのかということが米農家の収益に関わってくること、東アフリカの共通市場化によって第三国からの米の密輸が深刻化して、米の価格形成に影響を与えていることなど、今後のウガンダにおける米産業の発展にとって重要な論点を解明した。本論文のオリジナリティは十分あり、高い学術的価値を有していると判断できる。

よって、審査員一同は、博士（農業経済学）の学位を授与する価値があると判断した。